

# PEDAGOGY OF ENVIRONMENTAL STUDY (105)

**Maximum Marks: 100**

**External: 70 Internal: 30**

## **Design of the Course**

- \*Each unit of study to have a field-based assignment.
- \*Specific readings are to be used for discussion in groups enabling a close reading of texts.

## **Rationale and Aim**

The main aim of this course is to prepare teachers who understand the philosophical and epistemological basis of EVS as a composite area of study that draws upon sciences and social sciences.

The content related to concepts in science and social science is embedded within the course. As students understand children's ideas, it is also an opportunity for the teacher educator to help them revisit and challenge their own conceptual understanding, identify misconceptions and advance towards a better understanding.

This course along with the courses in Child studies and Contemporary Studies will help the future teachers gain a deeper understanding of the ways in which children make sense of their physical and social environment and this insight will enrich their classroom teaching and learning.

## **Specific objectives**

- To help student-teachers understand the scope of EVS and examine different perspectives of curriculum organization.
- To facilitate student-teachers to probe children's ideas in science and social science
- To prepare student-teachers to plan for and carry out classroom transaction in the light of various theoretical viewpoints of learning and children's ideas
- To prepare student-teachers to assess children's learning using different modes.

## **Units of Study**

### **Unit 1: Concept of Environmental Studies (EVS)**

- \*Meaning and components of environment
- \*Meaning, concept & nature of Environmental Studies
- \*Need and importance of Environmental Studies
- \*Objectives of EVS at primary level – General and according to NCF 2005
- \*Scope of EVS at primary level
- \*Curriculum organization of EVS at primary level

### **Unit 2: Understanding Children's Ideas**

#### **\* Perspectives in EVS Learning**

- Piaget. (Cognitive development theory –schemas, processes & stages of development)
- Vygotsky (Social & cultural influence on cognitive development - concept of MKO & ZPD)

- Bruner (Concepts, scaffolding, spiral curriculum, Models of representation)
- Ausubel (Meaningful Reception learning Theory, concept of advance organizer)

**\* Research on Children's Ideas**

- Characteristics of children's ideas
- Preconceptions –meaning & examples
- Implication of understanding of children's ideas for classroom transaction (concept change- methods & strategies –ECIRR model)

### **Unit 3: Classroom Transaction and Assessment**

**\* Inquiry Approach**—meaning and nature, Role of teacher in inquiry process, 5 E's -- learning cycle

**\* Ways of conducting inquiry:**- observation, activities, discussion, and small group work, field visits, project, surveys and experimentation; importance of these in teaching-learning EVS

**\* Process Skills in EVS:**-- Meaning & types

**\* understand how children engage with ideas**, characteristics of children's ideas

-- Understand how children make linkages, classify, analyse, kind of questions they ask & express themselves.

**\* Different ways of assessing and using assessment for further learning:**--Assessing through creative writing, picture reading, children's drawing, field visit & survey, projects, experiments & activities, dialogues with children, making good guess & hypothesis

### **Unit 4: Planning for Teaching**

**\* Concept maps:**-Meaning, construction and uses

**\* Thematic web charts**—Meaning & types

**\* Unit Planning** – Meaning, structure, need & importance

**\* Resource pool of materials( Learning resources) :-** Meaning & Types ,Points to be kept in mind while collecting & using learning resources

**\* Reflecting on classroom practices:** - Meaning & characteristics of reflective teaching

**\* Reflective Journal:** -- Meaning & Maintaining of Reflective Journal

**Essential Readings**

#### **Unit 1**

1. Jaithirtha, Kabir (2003) Relating with the Earth: an exploration of the possibilities in teaching Geography. *Journal of the Krishnamurti Schools*. <http://www.journal.kfionline.org/article.asp?issue=7&article=6>.
2. NCERT, (2005) *Syllabus for Elementary Classes-* Volume I. NCERT: New Delhi.
3. Orr, D.W. (2007) Is Environmental Education an Oxymoron? *Journal of the Krishnamurti Schools*. <http://www.journal.kfionline.org/article.asp?issue=11&article=3>.
4. Phatak, K. (2009) Walks: to nurture the Natural. *Journal of the Krishnamurti Schools*. <http://www.journal.kfionline.org/article.asp?issue=13&article=3>.
5. Seminar Proceedings (1995-96) Seminar on EVS organized by Vidya Bhawan, Udaipur.
6. Sarabhai, V. K. et.al. (2007) *Tbilisi to Ahmadabad– The Journey of Environmental Education: A Source book*, Centre for Environment Education: Ahmedabad.
7. ਚਾਹਲ, ਗੁਰਚਰਨ ਸਿੰਘ (2016) ਵਾਤਾਵਰਣ ਸਿੱਖਿਆ ਦਾ ਅਧਿਐਨ ਸ਼ਾਸਤਰ, Twentyfirst Century Publications Patiala

## Unit 2

- Driver, Rosalind, et. al. (2006) *Making Sense of Secondary Science: Research into Children's Ideas*. Routledge Falmer: London Introduction pp.1-13; Chapter 1, pp.17-25; Chapter 12, pp.98-103; pp. Chapter 13, pp. 104-111.
- Guesene, E. and A. Tberghiem (1985) *Children's Ideas in Science*, Open University Press: Milton Keynes.
- Piaget, Jean (1930). *The Child's Conception of Physical Causality*. Kegan Paul, Trench, Trubner & Co. Ltd: London Chapter. 1 pp. 3-31; Chapter 5. pp.114-132
- ਚਾਹਲ, ਗੁਰਚਰਨ ਸਿੰਘ (2016) ਵਾਤਾਵਰਣ ਸਿੱਖਿਆ ਦਾ ਅਧਿਐਨ ਸ਼ਾਸਤਰ, Twentyfirst Century Publications Patiala

## Unit 3

1. Harlen, W. and J. Elstgeest (1998). *UNESCO Source Book for Science in the Primary School*. NBT: New Delhi.
2. NCERT, (2008). *Source Book on Assessment for Classes I – V*, Environmental Studies. NCERT: New Delhi.
3. ਚਾਹਲ, ਗੁਰਚਰਨ ਸਿੰਘ (2016) ਵਾਤਾਵਰਣ ਸਿੱਖਿਆ ਦਾ ਅਧਿਐਨ ਸ਼ਾਸਤਰ, Twentyfirst Century Publications Patiala

## Unit 4

1. Pollard, Andrew (2002). *Reflective Teaching*. Continuum: London

### Readings for Discussion

## Unit 1

1. Agnihotri, Ramakant et. al. (1994) *Prashika*, Eklavya's Innovative Experiment in Primary Education. Eklavya: Bhopal.
2. Mishra, Anupam (2004) *Aaj bhi Kharein hai Talaab*, Gandhi Peace Foundation: New Delhi. 5<sup>th</sup> Edition.
3. Raina, V. and D. P. Singh (2001) What is Science? *Dispatch*, October-December.

## Unit 2

1. Driver, Rosalind (1981) Pupils' Alternative Frameworks in Science, *European Journal of Science Education* 3(1), 93-101.
2. George, Alex M. (2007). *Children's Perception of Sarkar- A critique of Civics Text books*, Eklavya: Bhopal.
3. NCERT, (2008) *Source Book on Assessment for Classes I–V*. Chapter 2: Environmental Studies. NCERT: New Delhi.

## Unit 3

1. Bodrova, E. and D. Leong (1996) *Tools of the Mind: The Vygotskian Approach to Early Childhood and Education*. Merrill: New Jersey. Chapter 9.

## **Advanced Readings**

### **Unit 1**

1. Batra, Poonam (ed) (2010) *Social Science Learning in Schools: Perspectives and Challenges*. Sage: New Delhi.
2. Parker, W.C. (ed.) (2010) *Social Studies Today: Research and Practice* Routledge: New York. .
3. Sainath, P. (1996) *Everybody Loves a Good Drought- Stories from India's Poorest Districts*, Penguin Books: New Delhi.
4. Shiva, Vandana. (2000) *Stolen Harvest: The Hijacking of Global Food Supply*. South End Press: Cambridge, UK.

### **Unit 2**

1. Ausubel, David P. (1969) Some Psychological and Educational Limitations of Learning by Discovery in Anderson, Hans O. (Ed.), *Readings in Science Education for the Secondary School*, Macmillan: India pp 97-113.
2. Brophy, J. and J. Alleman (2005) Primary grade students' knowledge and thinking about families, *Journal of Social Science Research*, Spring 2005.
3. Bruner, Jerome S. (1960) *The Process of Education*. Atma Ram & Sons: New Delhi
4. Carey, S. (1985) *Conceptual Change in Childhood*, MA: Bradford Books, MIT Press: Cambridge.
5. Driver, Rosalind, et.al. (2006) *Making Sense of Secondary Science: Research into Children's Ideas*. : Routledge Falmer: London. Introduction, pp.1-13 Chap 1, p.17-25; Chap12, pp.98-103; Chap 13, p. 104-111.
6. Gilbert, J. et. al. (1982). Children's Science and Its Consequences for Teaching. *Science Education*. John Wiley & Sons, Inc: London. 66(4), 623-33.
7. Piaget, Jean (1930). *The Child's Conception of Physical Causality*. Kegan Paul, Trench, Trubner & Co. Ltd: London.
8. Rieber, Robert W. and Aaron S. Carton (1987) *The collected works of L.S. Vygotsky Volume I*, Ch. 6- Development of scientific concepts in childhood. pp. 167-242.

### **Unit 3**

1. Devereux, J. (2000) *Primary Science*. Paul Champman Publishing: London.
2. Harlen, W. (2006) *Teaching, Learning and Assessing Science 5 – 12*. Sage: London.
3. Howe, A. C. and L. Jones (1998) *Engaging children in Science*. Prentice Hall: New Jersey.

### **Unit 4**

- 1 Fensham Peter J. et. al (eds.) (1994) *The content of science; A Constructivist approach to its Teaching and learning*. The Falmer Press, Taylor and Francis Inc: London.

- 2 Gilbert, J. (2004) *The Routledge Falmer Reader in Science Education*, Routledge London.
- 3 Mintzes, Joel J et.al. (1998) *Teaching science for Understanding: A Human Constructivist View*. Academic press: California.
- 4 Parkinson. J. (2004). *Reflective Teaching of Science 11-18*. Continuum: London.

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1. Batra, Poonam (ed) (2010) *Social Science Learning in Schools: Perspectives and Challenges*. Sage: New Delhi.
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2. Gilbert, J. (2004) *The Routledge Falmer Reader in Science Education*, Routledge London.
3. Mintzes, Joel J et.al. (1998) *Teaching science for Understanding: A Human Constructivist View*. Academic press: California.
4. Parkinson. J. (2004). *Reflective Teaching of Science 11-18*. Continuum: London.

**School Textbooks**

1. EVS textbooks for primary grades from the following NGOs:  
Digantar, Todi Ramjanipura, Kho Nagoraniya Road, Jagatpura, Jaipur  
Eklavya, E 10 Shankar Nagar, B.D.A Colony, Shivaji Nagar, Bhopal, Madhya Pradesh  
Sangati, AVEHI-ABACUS Project Third floor, K.K. Marg Municipal School, Saat Rasta, Mahalaxmi, Mumbai- 400 011
2. NCERT (2007) *Looking Around* Environmental Studies, Textbooks for class III-V, New Delhi.
3. Ramadas Jayshree (ed) (2004) *Small Science*: textbooks and workbooks (developed by: Homi Babha Centre for Science Education (HBCSE), Oxford University Press: Mumbai.